

What is claimed is:

1. A head support device, comprising:

a first link and a second link respectively having a first rotational center and a second rotational center, having a rotational center on a diametric line of a recording medium therebetween;

a third link and a fourth link which are respectively held so as to be rotatable about rotational centers provided at either side of said first link and rotational centers provided at either side of said second link; and

a first suspension and a second suspension which are respectively fixed on said third link and said fourth link and have heads respectively disposed on one side thereof.

2. The head support device of claim 1, wherein said head comprises a slider with a signal conversion element mounted thereon.

3. The head support device of claim 1, wherein a line connecting the respective rotational centers of said first link passes through the first rotational center of said first link, while a line connecting the respective rotational centers of said second link passes through the second rotational center of said second link.

4. The head support device of claim 1, wherein the respective first rotational center and second rotational center of said

first link and said second link are located on an extension line of the diametric line of said recording medium.

5. The head support device of claim 1, wherein a first effective link length of said first link and a first effective link length of said second link are nearly identical with each other, and

a second effective link length of said first link and a second effective link length of said second link are nearly identical with each other, and

further, the distance from the rotational center of said first link to the rotational center of said second link at said third link and the distance from the rotational center of said first link to the rotational center of said second link at said fourth link are respectively nearly equal to the distance from the first rotational center of said first link to the second rotational center of said second link.

6. The head support device of claim 5, wherein the first effective link length of said first link and the second effective link length of said second link are identical with each other.

7. The head support device of claim 1, wherein the third link and the fourth link are in parallel relation with the diametric line of said recording medium that passes through the first rotational center and the second rotational center, and reciprocate in directions opposite to each other.

8. The head support device of claim 1, wherein said first

suspension and said second suspension are disposed at same surface side of either topside or underside of said recording medium.

9. The head support device of claim 8, wherein said second suspension is disposed in line-symmetrical relation with said first suspension with respect to the axis of rotational center of said recording medium.

10. The head support device of claim 1, wherein said first suspension and said second suspension are disposed so as to have the topside and underside of said recording medium therebetween.

11. The head support device of claim 7, wherein said first suspension and said second suspension are disposed in point-symmetrical relation with each other with respect to the midpoint in a direction of the rotational axis of said recording medium on the rotational center axis of said recording medium.

12. The head support device of claim 1, wherein track width directions of signal conversion elements respectively mounted on sliders comprising said heads respectively disposed on one end of said first suspension and one end of said second suspension reciprocate on said recording medium while keeping predetermined angles respectively against the diametric line of said recording medium that connects the first rotational center to the second rotational center.

13. The head support device of claim 12, wherein said predetermined angle in the track width direction of at least

one out of said signal conversion elements respectively mounted on sliders comprising said heads respectively disposed on one end of said first suspension and one end of said second suspension is  $0^\circ$  against a diametric line of said recording medium that connects the first rotational center to the second rotational center, that is, in parallel relation with the diametric line of said recording medium.

14. The head support device of claim 1, wherein respective center lines in the lengthwise direction of said first suspension and said second suspension are vertical to the diametric line of said recording medium that passes through the first rotational center of said first link and the second rotational center of said second link.

15. The head support device of claim 14, wherein the center of signal conversion element connected to said first suspension passes through two points being at same predetermined distance in a direction vertical to a radial line from the radial line at the first suspension side of said recording medium that connects the first rotational center to the second rotational center and located on the innermost periphery or outermost periphery of recordable zone of said recording medium, and

the center of conversion element connected to said second suspension passes through two points being at same predetermined distance in a direction vertical to a radial line from the radial line at the second suspension side of said recording medium that

connects the first rotational center to the second rotational center and located on the innermost periphery or outermost periphery of recordable zone of said recording medium.

16. The head support device of claim 15, wherein the centers of signal conversion elements respectively connected to said first suspension and said second suspension are located on the innermost periphery of the recordable zone, and

in a direction vertical to the diametric line of said recording medium that connects the first rotational center to the second rotational center, distance  $d$  from the centers of the respective signal conversion elements to the diametric line of said recording medium that connects the first rotational center to the second rotational center is in a range as follows:

$$0 < d < d_0$$

where the distance between the center of said signal conversion element and the center of said slider is  $d_0$ .

17. The head support device of claim 15, wherein respectively predetermined distances in a direction vertical to the radial line at said first suspension and said second suspension are nearly identical with each other.

18. The head support device of claim 17, wherein at least one of the centers of sliders mounted with signal conversion elements comprising said heads respectively connected to said first suspension and said second suspension is located on the radial line of said recording medium that connects the first

rotational center to the second rotational center.

19. The head support device of claim 17, wherein the centers of signal conversion elements respectively connected to said first suspension and said second suspension are located on the innermost periphery of the recordable zone, and

in a direction vertical to the diametric line of said recording medium that connects the first rotational center to the second rotational center, distance  $d$  from the centers of the respective signal conversion elements to the diametric line of said recording medium that connects the first rotational center to the second rotational center is in a range as follows:

$$0 < d < d_0$$

where the distance between the center of said signal conversion element and the center of said slider is  $d_0$ .

20. The head support device of claim 14, wherein the center of signal conversion element connected to said first suspension passes through two intersections of a radial line of said recording medium at the first suspension side on the diametric line of said recording medium with the innermost periphery or the outermost periphery of the recordable zone of said recording medium, and

the center of signal conversion element connected to said second suspension passes through two intersections of a radial line of said recording medium at the second suspension side with the innermost periphery or the outermost periphery of the

recordable zone of said recording medium.

21. The head support device of claim 20, wherein the centers of signal conversion elements respectively connected to said first suspension and said second suspension are located on the innermost periphery of the recordable zone, and the center of slider mounted with signal conversion element comprising said head is located on the radial line of said recording medium that connects the first rotational center to the second rotational center.

22. The head support device of claim 20, wherein the centers of signal conversion elements respectively connected to said first suspension and said second suspension are located on the innermost periphery of the recordable zone, and

in a direction vertical to the diametric line of said recording medium that connects the first rotational center to the second rotational center, distance  $d$  from the centers of the respective signal conversion elements to the diametric line of said recording medium that connects the first rotational center to the second rotational center is in a range as follows:

$$0 < d < d_0$$

where the distance between the center of said signal conversion element and the center of said slider is  $d_0$ .

23. A head support device, comprising:

a first link and a second link respectively having a first rotational center and a second rotational center with a diametric

rotational center of a recording medium positioned therebetween;

a third link and a fourth link which are respectively held so as to be rotatable about rotational centers provided at either side of said first link and rotational centers provided at either side of said second link;

a first suspension and a third suspension which are fixed on said third link and respectively provided with heads at one side thereof; and

a second suspension and a fourth suspension which are fixed on said fourth link and respectively provided with heads at either side thereof.

24. The head support device of claim 23, wherein said head comprises a slider mounted with a signal conversion element.

25. The head support device of claim 23, wherein a line connecting respective rotational centers of said first link passes through the first rotational center of said first link, while a line connecting respective rotational centers of said second link passes through the second rotational center of said second link.

26. The head support device of claim 23, wherein the respective first rotational center and second rotational center of said first link and said second link are located on a diametric line of said recording medium.

27. The head support device of claim 23, wherein the first effective link length of said first link and the first effective



link length of said second link are nearly identical with each other, and

the second effective link length of said first link and the second effective link length of said second link are nearly identical with each other,

further, distance from a rotational center against said first link to a rotational center against said second link at said third link and distance from a rotational center against said first link to a rotational center against said second link at said fourth link are respectively nearly identical with distance from the first rotational center of said first link to the second rotational center of said second link.

28. The head support device of claim 27, wherein the first effective link length and the second effective link length of said first link are identical with each other.

29. The head support device of claim 23, wherein said third link and said fourth link are parallel to a diametric line of said recording medium that passes through the first rotational center and the second rotational center and reciprocate in directions opposite to each other.

30. The head support device of claim 23, wherein respective center lines in lengthwise directions of said first suspension and said third suspension fixed on said third link and of said second suspension and said fourth suspension fixed on said fourth link are vertical to the diametric line of said recording medium

that passes through the first rotational center of said first link and the second rotational center of said second link.

31. The head support device of claim 23, wherein the track width direction of a signal conversion element mounted on a slider comprising the head fitted to each end of said first suspension, said second suspension, said third suspension, and said fourth suspension reciprocates on said recording medium while keeping a predetermined angle against the diametric line of said recording medium that connects the first rotational center to the second rotational center.

32. The head support device of claim 31, wherein at one signal conversion element at least out of signal conversion elements mounted on sliders respectively fitted to the respective ends of said first suspension, said second suspension, said third suspension, and said fourth suspension, the predetermined angle in track width direction of the signal conversion element against the diametric line of said recording medium that connects the first rotational center to the second rotational center is  $0^{\circ}$ , that is, parallel to the diametric line of said recording medium.

33. The head support device of claim 23, wherein the center of each signal conversion element connected to said first suspension, said second suspension, said third suspension, and said fourth suspension passes through two points on the innermost periphery or outermost periphery of recordable zone of said recording medium which are respectively at predetermined

distances in a direction vertical to the diametric line from the diametric line of said recording medium that connects the first rotational center to the second rotational center.

34. The head support device of claim 33, wherein the predetermined distances in a direction vertical to the diametric line of said recording medium at said first suspension and said second suspension are nearly identical with each other, and the predetermined distances in a direction vertical to the diametric line of said recording medium at said third suspension and said fourth suspension are nearly identical with each other.

35. The head support device of claim 34, wherein the center of signal conversion element connected to at least one suspension out of said first suspension, said second suspension, said third suspension, and said fourth suspension is located on the innermost periphery of recordable zone, and the center of slider mounted with signal conversion element comprising said head is located on the diametric line of said recording medium that connects the first rotational center to the second rotational center.

36. The head support device of claim 34, wherein the center of signal conversion element connected to at least one suspension out of said first suspension, said second suspension, said third suspension, and said fourth suspension is located on the innermost periphery of the recordable zone, and

in a direction vertical to the diametric line of said

recording medium that connects the first rotational center to the second rotational center, distance  $d$  from the center of said signal conversion element to the diametric line of said recording medium that connects the first rotational center to the second rotational center is in a range as follows:

$$0 < d < d_0$$

where the distance between the center of said signal conversion element and the center of said slider is  $d_0$ .

37. The head support device of claim 23, wherein said first suspension and said third suspension fixed on said third link are arranged in such manner as to sandwich the topside and underside of said recording medium therebetween, while said second suspension and said fourth suspension fixed on said fourth link are arranged in such manner as to sandwich the topside and underside of said recording medium therebetween.

38. The head support device of claim 37, wherein the center of signal conversion element connected to said second suspension is disposed in line-symmetrical relation with the center of signal conversion element connected to said first suspension with respect to the axis of rotational center of said recording medium, and in a state such that a line that passes through the first rotational center at said first link and connects respective rotational centers against said third link and said fourth link is kept at a predetermined angle against the diametric line of said recording medium that connects the first rotational

center to the second rotational center,

regarding at least one positional relation out of the positional relations of centers of signal conversion elements respectively connected to said first suspension and said third suspension fixed on said third link or the positional relations of centers of signal conversion elements respectively connected to said second suspension and said fourth suspension fixed on said fourth link, the center passes through a midpoint in a direction of rotational axis on the axis of rotational center of said recording medium, and is in line-symmetrical relation with respect to each line vertical to the axis of rotational center and the diametric line of said recording medium that connects the first rotational center to the second rotational center.

39. The head support device of claim 38, wherein the predetermined angle of the line connecting the rotational centers at said first link against the diametric line of said recording medium that connects the first rotational center to the second rotational center is nearly  $90^\circ$ .

40. The head support device of claim 23, wherein said first suspension and said third suspension fixed on said third link are arranged at one same surface side of the topside and underside of said recording medium, while said second suspension and said fourth suspension fixed on said fourth link are arranged at the other same surface side of the topside and underside of said

recording medium.

41. The head support device of claim 40, wherein the center of signal conversion element connected to said second suspension is disposed in point-symmetrical relation with the center of signal conversion element connected to said first suspension with respect to a midpoint in the rotational axis direction of said recording medium on the axis of rotational center of said recording medium, and in a state such that a line that passes through the first rotational center at said first link and connects respective rotational centers against said third link and said fourth link is kept at a predetermined angle against the diametric line of said recording medium that connects the first rotational center to the second rotational center,

regarding at least one of the positional relations out of the positional relations of centers of signal conversion elements respectively connected to said first suspension and said third suspension fixed on said third link or the positional relations of centers of signal conversion elements respectively connected to said second suspension and said fourth suspension fixed on said fourth link, the centers are in face-symmetrical relation with respect to a plane vertical to the diametric line of said recording medium that connects the first rotational center to the second rotational center including the axis of rotational center of said recording medium.

42. The head support device of claim 41, wherein the

predetermined angle of the line connecting the rotational centers at said first link against the diametric line of said recording medium that connects the first rotational center to the second rotational center is nearly 90°.

43. A head support device, comprising:

a first link and a second link respectively having a first rotational center and a second rotational center at either side thereof with a rotational center of a recording medium positioned therebetween;

a third link and a fourth link held so as to be rotatable about rotational centers respectively provided at either side of said first link and said second link; and

a first suspension and a second suspension respectively fixed on said third link and said fourth link, and respectively provided with heads at one side thereof,

wherein the respective heads of said first suspension and said second suspension are arranged on either topside or underside of said recording medium, and one head of said first suspension or said second suspension corresponds to a zone at the innermost periphery side of recordable zone divided into two zones by a separation periphery, while the other head corresponds to a zone at the outermost periphery side.

44. The head support device of claim 43, wherein said head comprises a signal conversion element mounted on a slider.

45. The head support device of claim 43, wherein a line

connecting the respective rotational centers provided at either end of said first link passes through the first rotational center of said first link, and a line connecting the respective rotational centers provided at either end of said second link passes through the second rotational center of said second link.

46. The head support device of claim 43, wherein the first rotational center of said first link and the second rotational center of said second link are located on a diametric line of said recording medium.

47. The head support device of claim 43, wherein the first effective link length of said first link and the first effective link length of said second link are nearly identical with each other, and

the second effective link length of said first link and the second effective link length of said second link are nearly identical with each other,

further, distance from a rotational center against said first link to a rotational center against said second link at said third link and distance from a rotational center against said first link to a rotational center against said second link at said fourth link are respectively nearly identical with distance from the first rotational center of said first link to the second rotational center of said second link.

48. The head support device of claim 47, wherein the first effective link length and the second effective link length of



said first link are nearly identical with each other.

49. The head support device of claim 43, wherein said third link and said fourth link are parallel to the diametric line of said recording medium that passes through the first rotational center and the second rotational center, and reciprocate in directions opposite to each other.

50. The head support device of claim 44, wherein a line corresponding to the track width direction of the signal conversion element mounted on the slider fitted to each of said first suspension and said second suspension reciprocates on said recording medium while keeping a predetermined angle against the diametric line of said recording medium that connects the first rotational center to the second rotational center.

51. The head support device of claim 50, wherein said predetermined angle in the track width direction of at least one out of said signal conversion elements respectively mounted on the sliders respectively fitted to said first suspension and said second suspension is  $0^\circ$  against the diametric line of said recording medium that connects the first rotational center to the second rotational center, that is, in parallel relation with the diametric line of said recording medium.

52. The head support device of claim 43, wherein respective center lines in the lengthwise direction of said first suspension and said second suspension are vertical to the diametric line of said recording medium that passes through the first rotational

center of said first link and the second rotational center of said second link.

53. The head support device of claim 44, wherein one center of signal conversion element connected to said first suspension or said second suspension passes through two points having same predetermined distance in a direction vertical to the diametric line from the diametric line of said recording medium that connects the first rotational center to the second rotational center and located on the innermost periphery and the separation periphery of the recordable zone of said recording medium at one side against the rotational center of said recording medium, and

the other center of the conversion element passes through two points having same predetermined distance in the another direction vertical to the diametric line from the diametric line and located on the separation periphery and the outermost periphery of the recordable zone of said recording medium at the other side against the rotational center of said recording medium.

54. The head support device of claim 53, wherein when the center of signal conversion element at the innermost periphery side of the recordable zone out of the signal conversion elements connected to said first suspension or said second suspension is located on the innermost periphery of the recordable zone, the center of the slider mounted with the signal conversion

element is located on the diametric line of said recording medium that connects the first rotational center to the second rotational center.

55. The head support device of claim 53, wherein in a direction vertical to the diametric line of said recording medium that connects the first rotational center to the second rotational center, distance  $d$  from the center of the signal conversion element at the innermost periphery side of the recordable zone to the diametric line of said recording medium that connects the first rotational center to the second rotational center is in a range as follows:

$$0 < d < d_0$$

where the distance between the center of said signal conversion element and the center of said slider is  $d_0$ .

56. The head support device of claim 44, wherein the center of one signal conversion element of the signal conversion elements connected to said first suspension or said second suspension passes through two intersections of the diametric line of said recording medium with the innermost periphery and the separation periphery of the recordable zone of said recording medium at one side against the rotational center of said recording medium, and

the center of the other signal conversion element passes through two intersections of the diametric line of said recording medium with the separation periphery and the outermost periphery

of the recordable zone of said recording medium at the other side against the rotational center of said recording medium.

57. The head support device of claim 56, wherein when the center of the signal conversion element at the innermost periphery side of the recordable zone is located on the innermost periphery of the recordable zone, the center of the slider mounted with the signal conversion element is located on the diametric line of said recording medium that connects the first rotational center to the second rotational center.

58. The head support device of claim 56, wherein in a direction vertical to the diametric line of said recording medium that connects the first rotational center to the second rotational center, the center of the signal conversion element at the innermost periphery side of the recordable zone is positioned between the diametric line of the recordable zone of said recording medium that connects the first rotational center to the second rotational center and the distance from the center of the signal conversion element to the center of the slider.

59. A head support device, comprising:

a bearing support which is disposed at one side of a rotational center of a recording medium and has a peak with a first curvature at the tip thereof;

a push arm which is disposed at the other side of the rotational center of said recording medium and provided with a push portion

having a peak with a second curvature at the tip thereof and is rotatable and activated by a spring;

a first link which has a notch activated by a spring and provided with a depression having a third curvature at the center thereof that is larger than the first curvature and in contact with the peak having the first curvature at the tip of said bearing support; and is rotatable about the peak having the first curvature of the bearing support as the first rotational center, and has rotary shafts at either side thereof;

a second link which has a notch with a depression having a fourth curvature at the center thereof that is larger than the second curvature and in contact with the peak having the second curvature of said push portion of said push arm, and is rotatable about the peak having the second curvature of said push portion of said push arm as the second rotational center, and also provided with rotary shafts at either side thereof;

a third link which is provided with holes at either side thereof and is rotatable about each rotary shaft as the rotational center at one side of each of said first link and said second link;

a fourth link which is provided with holes at either side thereof and is rotatable about each rotary shaft as the rotational center at the other side of each of said first link and said second link;

a first suspension which is fixed on said third link and

has a head at one side thereof;

a second suspension which is fixed on said fourth link and has a head at one side thereof; and

a driving means for rotational drive of said first link.

60. The head support device of claim 59, wherein each shape of said peaks having the first curvature and the second curvature and said notches with depressions having the third curvature and the fourth curvature is any one of a generally triangular shape, generally conic shape, generally semi-oval shape, and generally semi-circular shape.

61. The head support device of claim 59, wherein said head comprises a slider mounted with a signal conversion element.

62. The head support device of claim 59, wherein said driving means comprises a generally U-shaped drive arm provided with a push portion having a peak with a curvature provided at the end thereof; and

a piezoelectric element which is fixed on one inner side of the generally U-shaped drive arm and the other inner side opposing to the one inner side.

63. The head support device of claim 62, wherein the shape of a peak with a curvature is any one of a generally triangular shape, generally conic shape, generally semi-oval shape, and generally semi-circular shape.

64. The head support device of claim 59, wherein said driving means is a voice coil motor comprising a coil fixed on any one

of said first link and said second link and a permanent magnet opposing to said coil.

65. The head support device of claim 59, wherein a line connecting the respective rotational centers of said first link passes through the first rotational center of said first link, while a line connecting the respective rotational centers of said second link passes through the second rotational center of said second link.

66. The head support device of claim 59, wherein the respective first rotational center and second rotational center of said first link and said second link are located on an extension of the diametric line of said recording medium.

67. The head support device of claim 59, wherein the first effective link length of said first link and the first effective link length of said second link are nearly identical with each other, and

the second effective link length of said first link and the second effective link length of said second link are nearly identical with each other,

further, distance from a rotational center against said first link to a rotational center against said second link at said third link and distance from a rotational center against said first link to a rotational center against said second link at said fourth link are respectively nearly identical with distance from the first rotational center of said first link to the second

rotational center of said second link.

68. The head support device of claim 67, wherein the first effective link length and the second effective link length of said first link are nearly identical with each other.

69. The head support device of claim 59, wherein said third link and said fourth link are parallel to the diametric line of said recording medium that passes through the first rotational center and the second rotational center, and reciprocate in directions opposite to each other.

70. The head support device of claim 59, wherein said first suspension and said second suspension are arranged at same surface side of either topside or underside of said recording medium.

71. The head support device of claim 70, wherein said second suspension is arranged in line-symmetrical relation with said first suspension with respect to the axis of rotational center of said recording medium.

72. The head support device of claim 59, wherein said first suspension and said second suspension are arranged so as to sandwich the topside and underside of said recording medium therebetween.

73. The head support device of claim 72, wherein said first suspension and said second suspension are arranged in point-symmetrical relation with each other with respect to a midpoint in the rotational axis direction of said recording



medium on the axis of rotational center of said recording medium.

74. The head support device of claim 59, wherein track width directions of signal conversion elements respectively mounted on sliders comprising said heads respectively disposed on one end of said first suspension and one end of said second suspension reciprocate on said recording medium while keeping predetermined angles respectively against the diametric line of said recording medium that connects the first rotational center to the second rotational center.

75. The head support device of claim 44, wherein the predetermined angle in the track width direction of at least one signal conversion element out of the signal conversion elements respectively mounted on the sliders comprising the heads respectively disposed on one end of said first suspension and one end of said second suspension is  $0^{\circ}$  against the diametric line of said recording medium that connects the first rotational center to the second rotational center, that is, in parallel relation with the diametric line of said recording medium.

76. The head support device of claim 59, wherein respective center lines in the lengthwise direction of said first suspension and said second suspension are vertical to the diametric line of said recording medium that passes through the first rotational center of said first link and the second rotational center of said second link.

77. The head support device of claim 76, wherein the center

of signal conversion element connected to said first suspension passes through two points being at same predetermined distance in a direction vertical to a radial line from the radial line at the first suspension side of said recording medium that connects the first rotational center to the second rotational center and located on the innermost periphery or outermost periphery of recordable zone of said recording medium, and

the center of the signal conversion element connected to said second suspension passes through two points being at same predetermined distance in a direction vertical to a radial line from the radial line at the first suspension side of said recording medium that connects the first rotational center to the second rotational center and located on the innermost periphery or outermost periphery of recordable zone of said recording medium.

78. The head support device of claim 77, wherein the centers of signal conversion elements respectively connected to said first suspension and said second suspension are located on the innermost periphery of the recordable zone, and

in a direction vertical to the diametric line of said recording medium that connects the first rotational center to the second rotational center, distance  $d$  from the centers of the respective signal conversion elements to the diametric line of said recording medium that connects the first rotational center to the second rotational center is in a range as follows:

$$0 < d < d_0$$

where the distance between the center of said signal conversion element and the center of said slider is  $d_0$ .

79. The head support device of claim 77, wherein respectively predetermined distances in a direction vertical to the radial line at said first suspension and said second suspension are nearly identical with each other.

80. The head support device of claim 79, wherein the centers of signal conversion elements respectively connected to said first suspension and said second suspension are located on the innermost periphery of the recordable zone, and

in a direction vertical to the diametric line of said recording medium that connects the first rotational center to the second rotational center, distance  $d$  from the centers of the respective signal conversion elements to the diametric line of said recording medium that connects the first rotational center to the second rotational center is in a range as follows:

$$0 < d < d_0$$

where the distance between the center of said signal conversion element and the center of said slider is  $d_0$ .

81. The head support device of claim 79, wherein at least one of the centers of sliders mounted with signal conversion elements comprising said heads respectively connected to said first suspension and said second suspension is located on the radial line of said recording medium that connects the first rotational center to the second rotational center.

82. The head support device of claim 76, wherein the center of signal conversion element connected to said first suspension passes through two intersections of a radial line of said recording medium at the first suspension side on the diametric line of said recording medium with the innermost periphery or the outermost periphery of the recordable zone of said recording medium, and

the center of signal conversion element connected to said second suspension passes through two intersections of a radial line of said recording medium at the second suspension side with the innermost periphery or the outermost periphery of the recordable zone of said recording medium.

83. The head support device of claim 82, wherein the centers of signal conversion elements respectively connected to said first suspension and said second suspension are located on the innermost periphery of the recordable zone, and the centers of sliders mounted with signal conversion elements comprising the heads are located on the respective radial lines of said recording medium that connects the first rotational center to the second rotational center.

84. The head support device of claim 82, wherein the centers of signal conversion elements respectively connected to said first suspension and said second suspension are located on the innermost periphery of the recordable zone, and

in a direction vertical to the diametric line of said

recording medium that connects the first rotational center to the second rotational center, distance  $d$  from the centers of the respective signal conversion elements to the diametric line of said recording medium that connects the first rotational center to the second rotational center is in a range as follows:

$$0 < d < d_0$$

where the distance between the center of said signal conversion element and the center of said slider is  $d_0$ .

85. The head support device of claim 59, wherein a third suspension and a fourth suspension respectively provided with the heads having sliders mounted with signal conversion elements at one respective ends thereof are additionally fixed on said third link and said fourth link.

86. The head support device of claim 85, wherein a line connecting the respective rotational centers provided at said first link passes through the first rotational center of said first link, while a line connecting the respective rotational centers provided at said second link passes through the second rotational center of said second link.

87. The head support device of claim 85, wherein the respective first rotational center and second rotational center of said first link and said second link are located on an extension of the diametric line of said recording medium.

88. The head support device of claim 85, wherein the first effective link length of said first link and the first effective

link length of said second link are nearly identical with each other, and

the second effective link length of said first link and the second effective link length of said second link are nearly identical with each other,

further, distance from a rotational center against said first link to a rotational center against said second link at said third link and distance from a rotational center against said first link to a rotational center against said second link at said fourth link are nearly identical with distance from the first rotational center of said first link to the second rotational center of said second link.

89. The head support device of claim 88, wherein the first effective link length and the second effective link length of said first link are identical with each other.

90. The head support device of claim 85, wherein the track width directions of signal conversion elements mounted on sliders comprising said heads respectively fitted to the ends of said first suspension, said second suspension, said third suspension, and said fourth suspension reciprocate on said recording medium while keeping predetermined angles respectively against the diametric line of said recording medium that connects the first rotational center to the second rotational center.

91. The head support device of claim 85, wherein respective center lines in lengthwise directions of said first suspension

and said third suspension fixed on said third link and of said second suspension and said fourth suspension fixed on said fourth link are vertical to the diametric line of said recording medium that passes through the first rotational center of said first link and the second rotational center of said first link.

92. The head support device of claim 91, wherein the track width direction of a signal conversion element mounted on a slider comprising the head fitted to each end of said first suspension, said second suspension, said third suspension, and said fourth suspension reciprocates on said recording medium while keeping a predetermined angle against the diametric line of said recording medium that connects the first rotational center to the second rotational center.

93. The head support device of claim 92, wherein at one signal conversion element at least out of signal conversion elements mounted on sliders respectively fitted to the respective ends of said first suspension, said second suspension, said third suspension, and said fourth suspension, the predetermined angle in track width direction of the signal conversion element against the diametric line of said recording medium that connects the first rotational center to the second rotational center is  $0^\circ$ , that is, parallel to the diametric line of said recording medium.

94. The head support device of claim 85, wherein the center of a signal conversion element connected to each of said first suspension, said second suspension, said third suspension, and

said fourth suspension passes through two points on the innermost periphery or outermost periphery of recordable zone of said recording medium which are respectively at predetermined distances in a direction vertical to the diametric line from the diametric line of said recording medium that connects the first rotational center to the second rotational center.

95. The head support device of claim 94, wherein the predetermined distances in a direction vertical to the diametric line of said recording medium at said first suspension and said second suspension are nearly identical with each other, and the predetermined distances in a direction vertical to the diametric line of said recording medium at said third suspension and said fourth suspension are nearly identical with each other.

96. The head support device of claim 95, wherein the center of a signal conversion element connected to at least one suspension out of said first suspension, said second suspension, said third suspension, and said fourth suspension is located on the innermost periphery of recordable zone, and the center of a slider mounted with a signal conversion element comprising the head is located on the diametric line of said recording medium that connects the first rotational center to the second rotational center.

97. The head support device of claim 95, wherein the center of a signal conversion element connected to at least one suspension out of said first suspension, said second suspension,



said third suspension, and said fourth suspension is located on the innermost periphery of the recordable zone, and

in a direction vertical to the diametric line of said recording medium that connects the first rotational center to the second rotational center, distance  $d$  from the center of said signal conversion element to the diametric line of said recording medium that connects the first rotational center to the second rotational center is in a range as follows:

$$0 < d < d_0$$

where the distance between the center of said signal conversion element and the center of said slider is  $d_0$ .

98. The head support device of claim 85, wherein said first suspension and said third suspension fixed on said third link are arranged in such manner as to sandwich the topside and underside of said recording medium therebetween, while said second suspension and said fourth suspension fixed on said fourth link are arranged so as to sandwich the topside and underside of said recording medium therebetween.

99. The head support device of claim 98, wherein the center of a signal conversion element connected to said second suspension is disposed in line-symmetrical relation with the center of a signal conversion element connected to said first suspension with respect to the axis of rotational center of said recording medium, and in a state such that a line that passes through the first rotational center at said first link and

connects respective rotational centers against said third link and said fourth link is kept at a predetermined angle against the diametric line of said recording medium that connects the first rotational center to the second rotational center,

regarding at least one positional relation out of the positional relations of centers of signal conversion elements respectively connected to said first suspension and said third suspension fixed on said third link or the positional relations of centers of signal conversion elements respectively connected to said second suspension and said fourth suspension fixed on said fourth link, the center passes through a midpoint in a direction of rotational axis on the axis of rotational center of said recording medium, and is in line-symmetrical relation with respect to each line vertical to the axis of rotational center and the diametric line of said recording medium that connects the first rotational center to the second rotational center.

100. The head support device of claim 99, wherein the predetermined angle of the line connecting the rotational centers at said first link against the diametric line of said recording medium that connects the first rotational center to the second rotational center is nearly  $90^{\circ}$ .

101. The head support device of claim 85, wherein said first suspension and said third suspension fixed on said third link are arranged at one same surface side of the topside and underside

of said recording medium, while said second suspension and said fourth suspension fixed on said fourth link are arranged at the other same surface side of the topside and underside of said recording medium.

102. The head support device of claim 101, wherein the center of signal conversion element connected to said second suspension is disposed in point-symmetrical relation with the center of a signal conversion element connected to said first suspension with respect to a midpoint in the direction of rotational axis of said recording medium on the axis of rotational center of said recording medium, and in a state such that a line that passes through the first rotational center at said first link and connects respective rotational centers against said third link and said fourth link is kept at a predetermined angle against the diametric line of said recording medium that connects the first rotational center to the second rotational center,

regarding at least one positional relation out of the positional relations of centers of signal conversion elements respectively connected to said first suspension and said third suspension fixed on said third link or the positional relations of centers of signal conversion elements respectively connected to said second suspension and said fourth suspension fixed on said fourth link, the center is in face-symmetrical relation with respect to a plane vertical to the diametric line of said recording medium that connects the first rotational center to

the second rotational center including the axis of rotational center of said recording medium.

103. The head support device of claim 102, wherein the predetermined angle of the line connecting the rotational centers at said first link against the diametric line of said recording medium that connects the first rotational center to the second rotational center is nearly  $90^{\circ}$ .

104. A head support device, comprising:

a bearing support which is disposed at one side of a rotational center of a recording medium and has a peak with a first curvature at the tip thereof;

a push arm which is disposed at the other side of the rotational center of said recording medium and provided with a push portion having a peak with a second curvature at the tip thereof and is rotatable and activated by a spring;

a first link which has a notch activated by another spring and provided with a depression having a third curvature at the center thereof that is larger than the first curvature and in contact with the peak having the first curvature at the tip of said bearing support; and is rotatable about the peak having the first curvature of the bearing support as the first rotational center, and has rotary shafts at either side thereof;

a second link which has a notch with a depression having a fourth curvature at the center thereof that is larger than the second curvature and in contact with the peak having the

second curvature of said push portion of said push arm, and is rotatable about the peak having the second curvature of said push portion of said push arm as the second rotational center, and also has rotary shafts at either side thereof;

a third link which is provided with holes at either side thereof and is rotatable about each rotary shaft as the rotational center at one side of each of said first link and said second link;

a fourth link which is provided with holes at either side thereof and is rotatable about each rotary shaft as the rotational center at the other side of each of said first link and said second link;

a first suspension which is fixed on said third link and has a head at one side thereof;

a second suspension which is fixed on said fourth link and has a head at one side thereof; and

a driving means for rotational drive of said first link, wherein the heads respectively fitted to said first suspension and said second suspension are arranged, with the rotational center of said recording medium positioned therebetween, at the topside or the underside of said recording medium, and the head of said first suspension or said second suspension corresponds to the zone at the innermost periphery side of recordable zone divided into two zones by a separation periphery, while the head of the other suspension corresponds

to the zone at the outermost periphery side.

105. The head support device of claim 104, wherein said head comprises a signal conversion element mounted on a slider.

106. The head support device of claim 104, wherein a line connecting the respective rotational centers provided at both ends of said first link passes through the first rotational center of said first link, while a line connecting the respective rotational centers provided at both ends of said second link passes through the second rotational center of said second link.

107. The head support device of claim 104, wherein the first rotational center of said first link and the second rotational center of said second link are located on the diametric line of said recording medium..

108. The head support device of claim 104, wherein the first effective link length of said first link and the first effective link length of said second link are nearly identical with each other, and

the second effective link length of said first link and the second effective link length of said second link are nearly identical with each other,

further, distance from a rotational center against said first link to a rotational center against said second link at said third link and distance from a rotational center against said first link to a rotational center against said second link at said fourth link are respectively nearly identical with distance

from the first rotational center of said first link to the second rotational center of said second link.

109. The head support device of claim 108, wherein the first effective link length and the second effective link length of said first link are nearly identical with each other.

110. The head support device of claim 104, wherein said third link and said fourth link are parallel to the diametric line of said recording medium that passes through the first rotational center and the second rotational center, and reciprocate in directions opposite to each other.

111. The head support device of claim 105, wherein a line corresponding to the track width of the signal conversion element mounted on the slider fitted to each of said first suspension and said second suspension reciprocates on said recording medium while keeping a predetermined angle against the diametric line of said recording medium that connects the first rotational center to the second rotational center.

112. The head support device of claim 111, wherein the predetermined angle in the track width direction of at least one signal conversion element out of the signal conversion elements respectively mounted on the sliders comprising the heads respectively disposed on said first suspension and said second suspension is  $0^\circ$  against the diametric line of said recording medium that connects the first rotational center to the second rotational center, that is, in parallel relation with the

diametric line of said recording medium.

113. The head support device of claim 104, wherein respective center lines in the lengthwise direction of said first suspension and said second suspension are vertical to the diametric line of said recording medium that passes through the first rotational center of said first link and the second rotational center of said second link.

114. The head support device of claim 105, wherein the center of one signal conversion element connected to said first suspension or said second suspension passes through two points being at same predetermined distance in a direction vertical to the diametric line from the diametric line of said recording medium that connects the first rotational center to the second rotational center and located on the innermost periphery and the separation periphery of the recordable zone of said recording medium at one side against the rotational center of said recording medium, and

the center of the other signal conversion element passes through two points being at same predetermined distance in other direction vertical to a diametric line from the diametric line and located on the separation periphery and the outermost periphery of the recordable zone of said recording medium at the other side against the rotational center of said recording medium.

115. The head support device of claim 114, wherein in a



direction vertical to the diametric line of said recording medium that connects the first rotational center to the second rotational center, distance  $d$  from the center of the signal conversion element at the innermost periphery side of the recordable zone to the diametric line of said recording medium that connects the first rotational center to the second rotational center is in a range as follows:

$$0 < d < d_0$$

where the distance between the center of the signal conversion element and the center of the slider is  $d_0$ .

116. The head support device of claim 114, wherein when the center of the signal conversion element at the innermost periphery side of the recordable zone out of the signal conversion elements connected to said first suspension or said second suspension is located on the innermost periphery of the recordable zone, the center of the slider mounted with the signal conversion element is located on the diametric line of said recording medium that connects the first rotational center to the second rotational center.

117. The head support device of claim 105, wherein the center of one signal conversion element of the signal conversion elements connected to said first suspension or said second suspension passes through two intersections of the diametric line of said recording medium with the innermost periphery and the separation periphery of the recordable zone of said recording

medium at one side against the rotational center of said recording medium, and

the center of the other signal conversion element passes through two intersections of the diametric line of said recording medium with the separation periphery and the outermost periphery of the recordable zone of said recording medium at the other side against the rotational center of said recording medium.

118. The head support device of claim 117, wherein when the center of the signal conversion element at the innermost periphery side of the recordable zone is located on the innermost periphery of the recordable zone, the center of the slider mounted with the signal conversion element is located on the diametric line of said recording medium that connects the first rotational center to the second rotational center.

119. The head support device of claim 117, wherein in a direction vertical to the diametric line of said recording medium that connects the first rotational center to the second rotational center, distance  $d$  from the center of the signal conversion element at the innermost periphery side of the recordable zone to the diametric line of said recording medium that connects the first rotational center to the second rotational center is in a range as follows:

$$0 < d < d_0$$

where the distance between the center of the signal conversion element and the center of the slider is  $d_0$ .

120. The head support device of claim 104, wherein each shape of said peaks having the first curvature and the second curvature and said notches with depressions having the third curvature and the fourth curvature is any one of a generally triangular shape, generally conic shape, generally semi-oval shape, and generally semi-circular shape.

121. A head support device, comprising:

a first link having a first rotational center;

a second link having a second rotational center;

a third link rotatably held on one each side of said first link and said second link;

a first suspension and a second suspension which are fixed on said third link and provided with a head at one each side thereof; and

a driving means for rotationally driving said first link,

wherein the respective heads of said first suspension and said second suspension are arranged in such manner as to have a rotational center of a recording medium therebetween at the topside or underside of said recording medium.

122. The head support device of claim 121, wherein said head comprises a signal conversion element mounted on a slider.

123. The head support device of claim 121, wherein distance between the first rotational center at said first link and the rotational center against said third link and distance between the second rotational center at said second link and the

rotational center against said third link are nearly identical with each other, and distance between the respective rotational centers at said first link and said second link of said third link is nearly equal to distance between the first rotational center and the second rotational center.

124. The head support device of claim 121, wherein said third link reciprocates in a state of being parallel with a line connecting the first rotational center to the second rotational center.

125. The head support device of claim 122, wherein a line corresponding to the track width direction of the signal conversion element mounted on the slider fitted to each of said first suspension and said second suspension reciprocates on said recording medium while keeping a predetermined angle against the diametric line of said recording medium that is parallel to a line connecting the first rotational center to the second rotational center.

126. The head support device of claim 125, wherein said predetermined angle in the track width direction of at least one signal conversion element out of said signal conversion elements respectively mounted on the sliders respectively fitted to said first suspension and said second suspension is  $0^\circ$  against the diametric line, that is, in parallel relation with the diametric line of said recording medium.

127. The head support device of claim 121, wherein

respective center lines in the lengthwise direction of said first suspension and said second suspension respectively having the heads are vertical to a line connecting the first rotational center to the second rotational center.

128. The head support device of claim 122, wherein the center of the signal conversion element connected to said first suspension passes through two points having same predetermined distance in a direction vertical to the diametric line from the diametric line of said recording medium that is parallel to a line connecting the first rotational center to the second rotational center and located on the innermost periphery and the outermost periphery of the recordable zone of said recording medium at one side against the rotational center of said recording medium, and

the center of the conversion element connected to said second suspension passes through two points having same predetermined distance in a direction vertical to the diametric line from the diametric line and located on the outermost periphery and the innermost periphery of the recordable zone of said recording medium at the other side against the rotational center of said recording medium.

129. The head support device of claim 128, wherein the centers of the sliders respectively fitted to said first suspension and said second suspension are located on the diametric line of said recording medium that is parallel to a

line connecting the first rotational center to the second rotational center.

130. The head support device of claim 128, wherein when the predetermined distance is  $d$  and the distance between the center of the signal conversion element and the center of the slider is  $d_0$ , then the predetermined distance  $d$  is in a range of:

$$0 < d < d_0.$$

131. The head support device of claim 122, wherein the center of one signal conversion element out of the signal conversion elements connected to said first suspension and said second suspension passes through two points having same predetermined distance in a direction vertical to the diametric line from the diametric line of said recording medium that is parallel to a line connecting the first rotational center to the second rotational center and located on the innermost periphery and the separation periphery of the recordable zone of said recording medium at one side against the rotational center of said recording medium, and

the center of the other conversion element passes through two points having same predetermined distance in a direction vertical to the diametric line from the diametric line and located on the outermost periphery and the separation periphery of the recordable zone of said recording medium at the other side against the rotational center of said recording medium.

132. The head support device of claim 131, wherein the head comprises a signal conversion element mounted on a slider.

133. The head support device of claim 131, wherein distance between the first rotational center at said first link and the rotational center against said third link and distance between the second rotational center at said second link and the rotational center against said third link are nearly identical with each other, and distance between the respective rotational centers at said first link and said second link of said third link is nearly equal to distance between the first rotational center and the second rotational center.

134. The head support device of claim 131, wherein said third link reciprocates in a state of being parallel with a line connecting the first rotational center to the second rotational center.

135. The head support device of claim 132, wherein a line corresponding to the track width direction of the signal conversion element mounted on the slider fitted to each of said first suspension and said second suspension reciprocates on said recording medium while keeping a predetermined angle against the diametric line of said recording medium that is parallel to a line connecting the first rotational center to the second rotational center.

136. The head support device of claim 135, wherein said predetermined angle in the track width direction of at least

one signal conversion element out of said signal conversion elements respectively mounted on the sliders respectively fitted to said first suspension and said second suspension is  $0^\circ$  against the diametric line, that is, in parallel relation with the diametric line of said recording medium.

137. The head support device of claim 131, wherein respective center lines in the lengthwise direction of said first suspension and said second suspension respectively having the heads are vertical to a line connecting the first rotational center to the second rotational center.

138. The head support device of claim 131, wherein when the center of the signal conversion element at the innermost periphery side of the recordable zone is located on the innermost periphery of the recordable zone, the center of the slider mounted with the signal conversion element is located on the diametric line of said recording medium that is parallel to a line connecting the first rotational center to the second rotational center.

139. The head support device of claim 131, wherein when the predetermined distance is  $d$  and the distance between the center of the signal conversion element and the center of the slider is  $d_0$ , then the predetermined distance  $d$  is in a range of:

$$0 < d < d_0.$$

140. A head support device, comprising:

a bearing support which is disposed at one side of a rotational



center of a recording medium and has a peak with a first curvature at the tip thereof;

a push arm which is disposed at the other side of the rotational center of said recording medium and provided with a push portion having a peak with a second curvature at the tip thereof and is rotatable and activated by a spring;

a first link which has a notch activated by another spring and provided with a depression having a third curvature at the center thereof that is larger than the first curvature and in contact with the peak having the first curvature at the tip of said bearing support, and is rotatable about the peak having the first curvature of the bearing support as the first rotational center and has rotary shafts disposed at either side thereof;

a second link which has a notch with a depression having a fourth curvature at the center thereof that is larger than the second curvature and in contact with the peak having the second curvature of said push portion of said push arm, and is rotatable about the peak having the second curvature of said push portion of said push arm as the second rotational center, and also has rotary shafts disposed at either side thereof;

a third link which is provided with holes at either side thereof and is rotatable about each rotary shaft as the rotational center at one side of each of said first link and said second link;

a fourth link which is provided with holes at either side

thereof and is rotatable about each rotary shaft as the rotational center at the other side of each of said first link and said second link;

a first suspension and a second suspension which are fixed on said third link, with the rotational center of said recording medium positioned therebetween, and each suspension has a head at one side thereof; and

a driving means for rotational drive of said first link, wherein the heads respectively fitted to said first suspension and said second suspension are arranged, with the rotational center of said recording medium positioned therebetween, at the topside or the underside of said recording medium.

141. The head support device of claim 140, wherein said head comprises a signal conversion element mounted on a slider.

142. The head support device of claim 140, wherein each shape of said peaks having the first curvature and the second curvature and said notches with depressions having the third curvature and the fourth curvature is any one of a generally triangular shape, generally conic shape, generally semi-oval shape, and generally semi-circular shape.

143. The head support device of claim 140, wherein distance between the first rotational center at said first link and the rotational center against said third link and distance between the second rotational center at said second link and the

rotational center against said third link are nearly identical with each other, and distance between the respective rotational centers at said first link and said second link of said third link and distance between said first link and said second link of said fourth link are respectively nearly identical with distance between the first rotational center and the second rotational center.

144. The head support device of claim 140, wherein said third link reciprocates in a state of being parallel with a line connecting the first rotational center to the second rotational center.

145. The head support device of claim 141, wherein a line corresponding to the track width direction of the signal conversion element mounted on the slider fitted to each of said first suspension and said second suspension reciprocates on said recording medium while keeping a predetermined angle against the diametric line of said recording medium that is parallel to a line connecting the first rotational center to the second rotational center.

146. The head support device of claim 145, wherein said predetermined angle in the track width direction of at least one signal conversion element out of said signal conversion elements respectively mounted on the sliders respectively fitted to said first suspension and said second suspension is  $0^\circ$  against the diametric line, that is, in parallel relation with the

diametric line of said recording medium. .

147. The head support device of claim 140, wherein respective center lines in the lengthwise direction of said first suspension and said second suspension respectively having the heads are vertical to a line connecting the first rotational center to the second rotational center.

148. The head support device of claim 141, wherein the center of the signal conversion element connected to said first suspension passes through two points having same predetermined distance in a direction vertical to the diametric line from the diametric line of said recording medium that is parallel to a line connecting the first rotational center to the second rotational center and located on the innermost periphery and the outermost periphery of the recordable zone of said recording medium at one side against the rotational center of said recording medium, and

the center of the conversion element connected to said second suspension passes through two points having same predetermined distance in a direction vertical to the diametric line from the diametric line and located on the outermost periphery and the innermost periphery of the recordable zone of said recording medium at the other side against the rotational center of said recording medium.

149. The head support device of claim 148, wherein the centers of the sliders respectively fitted to said first

suspension and said second suspension are located on the diametric line of said recording medium that is parallel to a line connecting the first rotational center to the second rotational center.

150. The head support device of claim 141, wherein the center of one signal conversion element out of the signal conversion elements connected to said first suspension and said second suspension passes through two points having same predetermined distance in a direction vertical to the diametric line from the diametric line of said recording medium that is parallel to a line connecting the first rotational center to the second rotational center and located on the innermost periphery and the separation periphery of the recordable zone of said recording medium at one side against the rotational center of said recording medium, and

the center of the other conversion element passes through two points having same predetermined distance in a direction vertical to the diametric line from the diametric line and located on the outermost periphery and the separation periphery of the recordable zone of said recording medium at the other side against the rotational center of said recording medium.

151. The head support device of claim 150, wherein the head comprises a signal conversion element mounted on a slider.

152. The head support device of claim 150, wherein distance between the first rotational center at said first link and the

rotational center against said third link and distance between the second rotational center at said second link and the rotational center against said third link are nearly identical with each other, and distance between the respective rotational centers at said first link and said second link of said third link and distance between the respective rotational centers at said first link and said second link of said fourth link is nearly equal to distance between the first rotational center and the second rotational center.

153. The head support device of claim 150, wherein said third link reciprocates in a state of being parallel with a line connecting the first rotational center to the second rotational center.

154. The head support device of claim 151, wherein a line corresponding to the track width direction of the signal conversion element mounted on the slider fitted to each of said first suspension and said second suspension reciprocates on said recording medium while keeping a predetermined angle against the diametric line of said recording medium that is parallel to a line connecting the first rotational center to the second rotational center.

155. The head support device of claim 154, wherein said predetermined angle in the track width direction of at least one signal conversion element out of said signal conversion elements respectively mounted on the sliders respectively fitted

to said first suspension and said second suspension is  $0^\circ$  against the diametric line, that is, in parallel relation with the diametric line of said recording medium.

156. The head support device of claim 150, wherein respective center lines in the lengthwise direction of said first suspension and said second suspension respectively having the heads are vertical to a line connecting the first rotational center to the second rotational center.

157. The head support device of claim 156, wherein when the center of the signal conversion element at the innermost periphery side of the recordable zone is located on the innermost periphery, the center of the slider mounted with the signal conversion element is located on the diametric line of said recording medium that is parallel to a line connecting the first rotational center to the second rotational center.

158. The head support device of claim 150, wherein when the predetermined distance is  $d$  and the distance between the center of the signal conversion element and the center of the slider is  $d_0$ , then the predetermined distance  $d$  is in a range of:

$$0 < d < d_0.$$

159. A method of driving a head support device, comprising:  
a generally U-shaped drive arm provided with a push portion having a peak with a curvature at the tip thereof; and  
a piezoelectric element which is fixed on one inner side

of the generally U-shaped drive arm and the other inner side opposing to said one inner side,

wherein a side other than the push portion side of said generally U-shaped drive arm is fixed on a fixing member, and the push portion side is provided with a depression; and

the push portion of said drive arm reciprocates due to expansion and contraction of said piezoelectric element, thereby driving a suspension having a slider mounted with a signal conversion element.

160. The method of driving a head support device of claim 159, wherein the shape of the peak with the curvature is any one of a generally triangular shape, generally conic shape, generally semi-oval shape, and generally semi-circular shape.

161. A disk drive, comprising:

a recording medium rotated by a spindle motor, and

a head support device opposing to said recording medium and having a signal conversion element for recording signals on said recording medium or reproducing signals from said recording medium,

wherein said head support device has a configuration of claim 1.

162. A disk drive, comprising:

a recording medium rotated by a spindle motor, and

a head support device opposing to said recording medium and having a signal conversion element for recording signals on said



recording medium or reproducing signals from said recording medium,

wherein said head support device is driven by a method of claim 159.